

WHAT IS CLAIMED IS:

1 1. A method for increased therapeutic gain in
2 chemotherapy and/or radiotherapy for proliferating malignant
3 or nonmalignant disease to produce high probability of tumor
4 control with low frequency of sequelae of therapy, comprising
5 administering a composition of a histone hyperacetylating
6 agent and a pharmaceutically acceptable carrier or a
7 pharmaceutically acceptable salt thereof to a subject in need.

1 2. The method as claimed in claim 1, wherein the increased
2 therapeutic gain is simultaneously enhancing tumor
3 radiosensitization or sensitizing tumors to chemotherapy,
4 increasing tumor growth inhibition, promoting wound healing
5 in mucositis and dermatitis, preventing/reducing severity of
6 plantar-palmar syndrome, decreasing tissue fibrosis,
7 protecting normal tissue from cell death, preventing
8 xerostomia, and suppressing tumorigenesis.

1 3. The method as claimed in claim 1, wherein the
2 hyperacetylating agent is a histone deacetylase inhibitor.

1 4. The method as claimed in claim 1, wherein the
2 radiotherapy is teletherapy, brachytherapy, or ionizing
3 radiation.

1 5. The method as claimed in claim 1, wherein the
2 proliferating malignant disease is selected from a group
3 consisting of melanoma, Kaposi's sarcoma, osteosarcoma,
4 neuroblastoma, rhabdomyosarcoma, Ewing's sarcoma, Soft
5 tissue sarcoma, skin cancer, lymphoma, leukemia, breast
6 cancer, germ cell tumor, primitive neuroectodermal tumor,
7 brain glioma, brain meningioma, head and neck cancer, thyroid
8 cancer, thymic cancer, cervical cancer, anus cancer,
9 colorectal cancer, prostate cancer, lung cancer,
10 hepatocellular carcinoma, cholangiocarcinoma, stomach
11 cancer, pancreatic cancer, esophageal cancer,
12 virus-associated tumors, and disease receiving bone marrow
13 transplantation.

1 6. The method as claimed in claim 1, wherein the
2 nonmalignant disease is selected from a group consisting of
3 pterygium, Graves' ophthalmopathy, orbital pseudotumor,
4 macular degeneration, keloid, wart, keratoacanthoma,
5 hemangioma, arteriovenous malformation, bursitis,
6 tendinitis, desmoid tumor, Peyronie's disease, vascular
7 stenosis, ameloblastoma, aneurysmal bone cyst, heterotopic
8 bone formation, gynecomastia, ovarian castration, parotitis,
9 eczema, atopic dermatitis, psoriasis, periarthrititis
10 humeroscapularis, epicondylitis, knee arthrosis,
11 hydradenitis, panaritium, autoimmune inflammatory arthritis,
12 histocytosis X, and disease from receiving organ
13 transplantation.

1 7. The method as claimed in claim 1, wherein the histone
2 hyperacetylating agent is trichostatin A or trichostatin C.

1 8. The mehtod as claimed in claim 1, wherein the histone
2 hyperacetylating agent is selected from a group consisting
3 of oxamflatin, trapoxin A, FR901228, apicidin, HC-Toxin,
4 WF27082, and chlamydocin.

1 9. The method as claimed in claim 1, wherein the histone
2 hyperacetylating agent is selected from a group consisting
3 of salicylihydroxamic acid, suberoylanilide hydroxamic acid,
4 and azelaic bishydroxamic acid.

1 10. The mehtod as claimed in claim 1, wherein the histone
2 hyperacetylating agent is selected from a group consisting
3 of azelaic-1-hydroxamate-9-an-ilide, M-carboxycinnamic acid
4 bishydroxamide, 6-(3-chlorophenylureido)carp-oic
5 hydroxamic acid, MW2796, and MW2996.

1 11. The method as claimed in claim 1, wherein the histone
2 hyperacetylating agent is selected from a group consisting
3 of sodium butyrate, isovalerate, valerate, 4-phenylbutyrate,
4 Sodiumphenylbutyrate, propionate, butrymide, isobutyramide,
5 phenylacetate, 3-bromopropionate, valproic Acid, and
6 tributyrin.

1 12. The method as claimed in claim 1, wherein the histone
2 hyperacetylating agent is MS-27-275 or the 3'-amino
3 derivatives thereof.

1 13. The method as claimed in claim 1, wherein the histone
2 hyperacetylating agent is depudecin or scriptaid.

1 14. The method as claimed in claim 1, wherein the
2 administering is non-oral.

1 15. The method as claimed in claim 1, wherein the
2 composition is a cream, an ointment, a gel, a paste, a powder,
3 a lotion, a patch, a suppository, a liposome formation, a
4 suspension, a mouth wash, an enema, an injection solution,
5 or a drip infusion.

1 16. The method as claimed in claim 1, wherein the
2 hyperacetylating agent is from 0.001% to 100% by weight of
3 the composition.

1 17. The method as claimed in claim 1, wherein the
2 composition further comprises a second agent selected from
3 a group consisting of a cytokine, an interleukin, an
4 anti-cancer agent or an anti-neoplastic agent, an
5 anti-angiogenesis agent, a chemotherapeutic agent, an
6 antibody, a conjugated antibody, an immune stimulant, an
7 antibiotic, retinoic acid, a tyrosine kinase inhibitor, a
8 hormone antagonist, and a growth stimulant.

1 18. The method as claimed in claim 17, wherein the
2 conjugated antibody is selected from a group consisting of
3 Trastuzumab, c225, Rituximab, and Cetuximab.

1 19. The method as claimed in claim 17, wherein the
2 chemotherapeutic agent is selected from a group consisting
3 of an alkylating agent, a purine analog, a pyrimidine analog,
4 a vinca alkaloid, a vinca-like alkaloid, etoposide, an
5 etoposide-like drug, a corticosteroid, a nitrosourea, an
6 antimetabolite, a platinum-based cytotoxic drug, an
7 anti-androgen, and an anti-estrogen.

1 20. The method as claimed in claim 17, wherein the
2 anti-angiogenesis agent is selected from a group consisting
3 of thalidomide, SU5416, SU6668, Thrombospondin-1,
4 endostatin, and angiostatin.

5 21. The method as claimed in claim 17, wherein the
antibiotic is Ganciclovir, Acyclovir, or Famciclovir.